INTEGRATED SAFEGUARDS DATASHEET
APPRaisal STAGE

I. Basic Information
Date prepared/updated: 04/12/2011
Report No.: AC6158

1. Basic Project Data

<table>
<thead>
<tr>
<th>Original Project ID: P092353</th>
<th>Original Project Name: Irrigation and Drainage Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country: Ethiopia</td>
<td>Project ID: P125307</td>
</tr>
<tr>
<td>Project Name: Irrigation and Drainage</td>
<td></td>
</tr>
<tr>
<td>Task Team Leader: Francois Onimus</td>
<td></td>
</tr>
<tr>
<td>Estimated Appraisal Date: April 6, 2011</td>
<td>Estimated Board Date: June 23, 2011</td>
</tr>
<tr>
<td>Managing Unit: AFTAR</td>
<td>Lending Instrument: Specific Investment Loan</td>
</tr>
<tr>
<td>Sector: Irrigation and drainage (100%)</td>
<td></td>
</tr>
<tr>
<td>Theme: Water resource management (100%)</td>
<td></td>
</tr>
<tr>
<td>IBRD Amount (US$m.): 0.00</td>
<td></td>
</tr>
<tr>
<td>IDA Amount (US$m.): 60.00</td>
<td></td>
</tr>
<tr>
<td>GEF Amount (US$m.): 0.00</td>
<td></td>
</tr>
<tr>
<td>PCF Amount (US$m.): 0.00</td>
<td></td>
</tr>
<tr>
<td>Other financing amounts by source:</td>
<td></td>
</tr>
<tr>
<td>BORROWER/RECIPIENT 18.70</td>
<td></td>
</tr>
<tr>
<td>Environmental Category: A - Full Assessment</td>
<td></td>
</tr>
<tr>
<td>Repeater []</td>
<td></td>
</tr>
<tr>
<td>Is this project processed under OP 8.50 (Emergency Recovery) or OP 8.00 (Rapid Response to Crises and Emergencies)</td>
<td>Yes [ ] No [X]</td>
</tr>
</tbody>
</table>

2. Project Objectives
The Ethiopia Irrigation and Drainage Project development objective is to sustainably increase agricultural output and productivity in the Project Area. This will be achieved by developing 20,000 ha of irrigation and appurtenant infrastructure (17,000 ha net irrigated), and providing support to the Government and the project beneficiaries for agricultural and market development and for sustainable irrigation management.

The proposed additional financing (AF) would help complete the original project objectives in the context of an unanticipated financing gap. Detailed engineering designs have produced higher cost estimates than the preliminary cost estimates based on the conceptual design used for the purposes of project appraisal. The additional funding will allow the Borrower to complete the construction of the two large irrigation schemes initially included in the project to their full extent. Despite the significant cost increase, the revised economic analysis shows a strong positive return of the proposed investment.
3. Project Description
The expected project results include: (i) improved access to water on about 17,000 hectares of land through investments in infrastructure; (ii) improved access to markets for inputs and produce through support to targeted supply chains and promotion of SME/SMIs; (iii) effective management of irrigation through public-private partnerships and strengthening of capacities of water users associations; and (iv) satisfactory project management and efficient use of resources.

The project also aims to support the Nile Basin Initiative and contribute to improved cooperation between Nile riparian countries. Investments under the project will show the tangible benefits that accrue to the improved understanding on the part of the Nile riparians. All parties benefit from continued commitment to the agreements reached under the NBI, and the project contributes to sustaining that momentum.

Lending Instrument

The lending instrument for this operation is a Specific Investment Loan (SIL). The implementation period is eight years with an original closing date on October 31, 2015. The project duration will be extended by two years to cope with initial delays related to the detailed design of the irrigation schemes. The project duration is longer than a conventional operation because of the scope of the project which includes detailed design, then construction and capacity building and institutional strengthening to ensure the sustainability of the project.

The total cost of the project is increased from US$ 110 million originally to US$178.7 million. The IDA contribution, which was originally US$100 million and was reduced to US$90 million in 2009 for the food crisis emergency response is now increased to US$150 million resulting in a US$60 million additional financing.

Project Components

The proposed project comprises three technical components: (i) Irrigation Development; (ii) Agricultural and Market Development; and (iii) Irrigation Management. The fourth component is Program Management. The project will support the Lake Tana growth corridor and will closely work together with other operations such as the Tana Beles project and the Agricultural Growth Program.

Component 1: Irrigation Development

The objective of this component is to sustainably develop about 17,000 ha net of ground and surface water infrastructure and ascertain future irrigation potential in 80,000 ha. The component will directly benefit participating households, expected to number approximately 16,000.

The component will finalize feasibility and detailed design studies, prepare bidding documents and launch tenders for construction and construction supervision, and develop
irrigation infrastructure supplying about 17,000 hectares. The component will also conduct feasibility studies into 80,000 hectares of irrigated agriculture and will conduct a number of additional studies. Finally, the component will promote low-cost irrigation technologies in low-lying areas around Lake Tana. Specifically, the project will finance the following sub-components:

(i) Sub-component 1.1 - Irrigation Investments. Development of about 20,000 hectares of irrigation and appurtenant infrastructure (17,000 ha net), including completion of technical feasibility and detailed design studies, implementation of works, and construction supervision. Two sites have been retained for development: Megech and Ribb. The component will also promote existing low-cost individual irrigation technologies, and will pilot groundwater development around lake Tana. All studies, construction and construction supervision will be outsourced to the private sector. Beneficiaries will be expected to contribute to overall investment costs.

(ii) Sub-component 1.2 - Technical Assistance. The project will prepare feasibility studies for up to 80,000 hectares of new irrigation development in selected sites, including Anger, Upper Beles, Negesso and Megech. Anger will be taken up to design level, if the feasibility study confirms its viability. A number of additional studies will be conducted, including appropriate irrigation legislation, support for the completion of an irrigation strategy and establishment of a national irrigation maintenance fund for the maintenance of public irrigation infrastructure. Studies also include ways to improve the efficient use of irrigation water, and the preparation of an institutional framework for large- and medium-scale irrigation development and management.

(iii) Sub-component 1.3 - Environmental and Social Assessments. The project will provide support to the GoE in conducting environmental and social assessments of investments in hydraulic infrastructure to help ensure that these meet internationally accepted standards. The assistance will not be limited to infrastructure immediately associated with the project, but will be extended to Anger Dam as well. Dam Safety policy will also be applied to Megech Dam. The component will finance implementation of the recommendations of the Environmental Management Plans in the project area. Payment of compensations for resettlement is also included in the project costs but is entirely the responsibility of the GoE.

Component 2: Agricultural and Market Development

The objective of this component is to promote sustainable intensification and commercialization of agriculture on the irrigation schemes developed by the project. The component will contribute to the project development objective of assisting the GOE in identifying investments in irrigation that are cost effective, environmentally and socially sound, beneficial to the rural poor, and to finance such investments adding approximately 20,000 hectares to irrigated area. The component will provide resources to assure the delivery of adaptive research and development (R&D) on improved production systems and technologies, the delivery of agricultural advisory services including increased pluralism in service, the strengthening of research-extension-farmer linkages, and the
improvement of market linkages within the project target woredas (districts) and kebeles (sub-districts). Activities under this component will be implemented by the regional agricultural bureau and complement the interventions of the Rural Capacity Building Project (RCBP) and Agricultural Growth Project (AGP) in the project areas.

Sub-components and activities to be funded are the following:

(i) Sub-component 2.1 - capacity-building for farmers in irrigated production through the delivery of adaptive R&D and farm management tools that will enable them to take full advantage of irrigation infrastructure and technologies;

(ii) Sub-component 2.2 - capacity-building for applied research and extension services to improve the delivery of relevant agricultural and farm management advice; and

(iii) Sub-component 2.3 - market and value chain development, as well as a matching grant mechanism, to help commercial entities (SME/SMIs, including farmer owned entities) take advantage of market opportunities and develop value chains.

Component 3: Irrigation Management

The objective of this component is to enhance the efficiency and the financial sustainability of irrigation infrastructure intended for implementation and future study. Doing so will help ensure that investments in irrigation infrastructure under Component 1 will be sustainable. This will be accomplished in two ways: (i) strengthening the capacity of water user associations to enhance their constituency base and to carry out necessary O&M and cost recovery functions; and (ii) promoting and implementing a greater role for public-private partnerships in irrigation infrastructure management in order to improve efficiency and operational performance.

These services will be delivered by a contracted operator who will be in charge of design review and endorsement, construction supervision and operation and maintenance of the irrigation and drainage facilities and access roads for a given period of time. The operator will also contribute to the establishment of the Irrigation Water User Associations (IWUA) through capacity building and delivery of various services, with a view to establish a financially viable and sustainable structure to handle the O&M of the scheme after the end of the management contract.

The component includes the following sub-components:

(i) Sub-component 3.1 - Developing and Strengthening Capacity of Water User Associations: this will include (a) implementation of an intensive program of stakeholder consultations and dissemination of information to farmers; (b) establishment of legally recognized water user groups, (c) implementation of demand-based approaches to system planning and design for Ribb and Megech schemes; and (d) strengthening capacities of farmers, WUAs and regional and national irrigation extension staff on issues associated with irrigated agriculture, and assistance to MoWE and local authorities to make sure that
they play a supporting role in the enforcement of WUA rules and regulations. The costs of this sub-component will include a provision for the shortfall in O&M cost recovery from water users during the initial years of scheme operations, and the O&M costs of primary public irrigation infrastructure. It also includes the cost of construction supervision which is going to be done by the same operator.

(ii) Sub-component 3.2 - Promoting the Role of Private Operators in Irrigation Infrastructure Planning and Operation: this will include advisory and transaction TA to implement the Ribb and Megech transaction models, and identification of other possible opportunities within the remaining 80,000 hectares of feasibility study. The sub-component will assess risks associated with each scheme, consult with Government and farmer groups on risk allocation, communicate with stakeholder groups, develop legal agreements and bid documents, launch a search program for both foreign and local bidders, and manage the bid and contract negotiations.

Component 4: Program Management.

The objective of this component is to manage resources in accordance with the project objectives and procedures. It will finance the following sub-components:

(i) Sub-component 4.1 - Management of the Project, including: (a) provision of technical assistance, training, office equipment and vehicles, minor office upgrading works, auditing and evaluation studies, and incremental operating costs in support of project management; (b) overall project planning, outsourcing of quality oversight through independent financial and technical audits and evaluation of project activities; and (c) strengthening procurement and financial management capacity at all levels.

(ii) Sub-component 4.2 - Establish a Monitoring and Evaluation system. Determine project specific performance based MIS system, based on baseline survey arrange for data collection and reporting on key performance output and impact indicators, through surveys, participatory assessments and mid-term and final evaluations.

4. Project Location and salient physical characteristics relevant to the safeguard analysis
The project will be implemented on sites on the north and east side of Lake Tana, Megech and Ribb respectively. Feasibility studies on up to an additional 80,000 ha will be conducted in Megech, Upper Beles and Anger. Adjacent to, and within, the command areas are important habitats that will be sensitive to irrigation developments. Resettlement within the command areas, and, for Ribb, into the command area from the new Ribb reservoir financed by the GoE, will be necessary to realize irrigation benefits. Detail maps of the study areas have been produced and attached with the ESIA studies of the projects.

5. Environmental and Social Safeguards Specialists
Mr Shankar Narayanan (SASDS)
Mr Asferachew Abate Abebe (AFTEN)
II. Key Safeguard Policy Issues and Their Management

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project.
   Identify and describe any potential large scale, significant and/or irreversible impacts:
   The principal environmental sensitivities associated with the proposed irrigation developments are aquatic habitats in rivers and in Lake Tana, and wetlands along the lakeshore and within the command areas. These habitats provide important spawning and nursery areas for economically important fish species well up into the drainages, and vital habitat for vulnerable and threatened bird species. Changes in river flows and annual flooding due to water storage and withdrawals, as well as land conversion, can put these habitats and species at significant risk. As well, water-borne diseases, especially malaria, are environmental health threats in the area that may be exacerbated by irrigation development. Potential water quality impacts from the use of agricultural chemicals are also a concern and shall be mitigated through appropriate pest management practices.
   The project involves earthworks and permanent land take in an area with a significant level of known cultural heritage, and surface evidence of unknown physical cultural heritage (archaeological remains such as stone tools made by Early Man). The Ribb scheme will be supplied by a large dam and safety issues need to be considered. The principal social issues are associated with resettlement of people to and within command areas as a consequence of reservoir flooding, plus land restructuring and consolidation, to realize irrigation benefits. Relocation, adapting to new agricultural production systems, and developing new community structures will be quite stressful for the people involved, and will take some time and need careful support to be completed successfully.
   All the above concerns are adequately described and addressed through the environmental and social assessments, and consequent management/resettlement plans and Pest Management Plan. A two phased approach was used to prepare PMP. The first phase of PMP identified the main pest problems and their context and laid the foundation for the preparation of the second phase PMP as part of the project implementation to address the pest problems identified. A Reconnaissance Physical Cultural Heritage Survey was carried out and incorporated in the ESIA. Additional ground-based cultural heritage investigation is to be carried out by the responsible Ethiopian authority (ARCCH) prior to construction. Specific provisions related to chance-find procedure
have been incorporated in the Construction tender documents. The Dam Safety Panel is operational. The Emergency Preparedness Plan (EPP) and the Operational and Maintenance Plan will be finalized in July 2011.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:
The Government of Ethiopia (GoE)-financed Ribb Dam is one of five dams being planned by Ministry of Water and Energy (MoWE) on rivers draining into Lake Tana, and irrigation developments in addition to Megech and Ribb are also being planned. In addition, the Tana Beles hydropower project which was just completed is going to divert a large flow out of the Abbay River (Blue Nile). Cumulatively, these developments will have significant adverse biodiversity and social impacts in the basin, as demonstrated by the assessment done in the ESIA study for Megech and Ribb schemes. These cumulative impacts are considered at a broader scale within the Tana Beles Integrated Water Resources Development Project also supported by the World Bank. In order to mitigate cumulative impacts a River Basin Authority has been established that will monitor the Lake on a regular basis and establish rules for effective water management. The Project will provide support to the GoE in conducting environmental and social assessments of investments in hydraulic infrastructure related to the project to help ensure that these meet internationally accepted standards.

Livestock is an integral part of the farming system in both Ribb and Megech project areas. Part of the communal grazing land will be maintained but a significant part will be used for irrigation development. In order to compensate for the loss of grazing land, it was recommended that 5 percent (in Megech) to 9 percent (in Ribb) of the irrigated land should be dedicated to the production of fodder for livestock. In addition it was recommended to plant leguminous trees and shrubs with good forage values around homesteads. These recommendations will be followed up as part of the implementation of Component 2 of the project.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.
Final selection of the Megech and Ribb project sites was the result of an analysis of the comparative economic, environmental and social benefits and costs of a number of site alternatives proposed by the GoE. Design of the two irrigation schemes during project implementation involved the consideration of a number of alternate infrastructure layouts and technologies (pressurized or surface irrigation) to deliver irrigation benefits while minimizing environmental and social impacts. The alternative retained # full surface irrigation # is yielding significantly higher benefits and is considered to be the most appropriate in the existing socioeconomic context.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.
Ethiopian Water Resources Management Policy is set out in proclamation No. 197/2000. The Policy is intended to promote comprehensive and integrated water resources management and optimal utilization of available water resources for sustainable socioeconomic development. In Addition to that the Federal Environmental Protection
Authority was established with the main objective of mainstreaming environmental
concerns into development programs, plans and projects.

National level infrastructure projects environmental and social safeguard instruments
are generally formulated and implemented at the Federal level. Several internationally-
financed programs and projects have triggered the development of Environmental and
Social Management Frameworks (ESMF), training for which is often given through
cascade training down to Woreda and Kebele levels. A detailed environmental and social
audit was conducted in December 2010 and the bi-annual supervision missions of the
Bank team has confirmed that the implementation of the irrigation and drainage project
ESMF was on track and that the project is in compliance with all World Bank safeguard
policies.

The ESIA developed for the irrigation and drainage project will be implemented by the
Ministry of Water and Energy. The Ministry established National and Regional Project
Coordination Offices. The National Project Coordination Office employed an
environmental specialist that will ensure the implementation of the project#s EMPs and
RAP along with the Amhara Region Environmental Protection Bureau. It is worth noting
that the capacity of government institutions in enforcing environmental management
plans is limited and there is a need for a close follow up by the project#s Environmental
Specialist. Independent annual audits will be conducted.

5. Identify the key stakeholders and describe the mechanisms for consultation and
disclosure on safeguard policies, with an emphasis on potentially affected people.
The project was initially designed using a framework approach, because the detailed
design of the two schemes was not available at appraisal and it was not possible to
evaluate the impacts with sufficient accuracy and comprehensiveness. The ESMF and the
RPF were disclosed on February 21, 2007.

The feasibility studies as well as preparation of the EMP and RAP involved substantial
consultations with project beneficiaries and project affected people. The ESMF and RPF
specify further consultations, as needed, in the preparation, disclosure and approval of
EA studies and RAPs. A disbursement condition related to the disclosure of the EAs and
RAPs is included in the Financing Agreement and will be maintained.

The following documents have been approved since project effectiveness: additional
fisheries study disclosed on January 2, 2008; supplementary EA for Ribb Dam (approved
on June 29, 2009); RAP for Ribb Dam (disclosed on January 4, 2009 for phase 1 report
and on March 2, 2011 for phase 2 report); ESIA for Megech scheme (disclosed on March
2, 2011); ESIA for Ribb scheme (disclosed on March 2, 2011). The RAP for Megech
scheme was received on January 31, 2011 and is currently being reviewed. Each of these
documents includes extensive description and proceedings of the public consultations and
is made available to the public in the Ministry of Water and Energy, the Environmental
Protection Authority and the appropriate local public offices.

Executive summaries of the two main ESIA studies for Megech and Ribb schemes have
been sent to the Executive Directors on March 18, 2011, per the requirements of OP 4.01.
All these documents complement the original two framework documents (ESMF and RPF) which were used for original appraisal and remain fully enforceable. Dates of disclosures of these original documents are mentioned in the table below.

Finally, the changes brought to the project do not change in any way the scope of the construction works nor the use of the water and the original notification to riparian countries made in 2007, to which both Sudan and Egypt have not objected. The riparian notification required under OP 7.50, therefore, remains fully valid.

---

**B. Disclosure Requirements Date**

| Environmental Assessment/Audit/Management Plan/Other: |  
| Was the document disclosed **prior to appraisal?** | Yes  
| Date of receipt by the Bank | 04/06/2011  
| Date of "in-country" disclosure | 03/02/2011  
| Date of submission to InfoShop | 04/06/2011  
| For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors | 03/23/2011  

| Resettlement Action Plan/Framework/Policy Process: |  
| Was the document disclosed **prior to appraisal?** | Yes  
| Date of receipt by the Bank | 04/11/2011  
| Date of "in-country" disclosure | 02/21/2007  
| Date of submission to InfoShop | 04/11/2011  

| Indigenous Peoples Plan/Planning Framework: |  
| Was the document disclosed **prior to appraisal?** |  
| Date of receipt by the Bank |  
| Date of "in-country" disclosure |  
| Date of submission to InfoShop |  

| Pest Management Plan: |  
| Was the document disclosed **prior to appraisal?** | Yes  
| Date of receipt by the Bank | 02/20/2007  
| Date of "in-country" disclosure | 02/21/2007  
| Date of submission to InfoShop | 02/21/2007  

* If the project triggers the Pest Management and/or Physical Cultural Resources, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.

If in-country disclosure of any of the above documents is not expected, please explain why:

---

**C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)**

| OP/BP/GP 4.01 - Environment Assessment |  
| Does the project require a stand-alone EA (including EMP) report? | Yes |
If yes, then did the Regional Environment Unit or Sector Manager (SM) review and approve the EA report?  Yes
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?  Yes

**OP/BP 4.04 - Natural Habitats**
Would the project result in any significant conversion or degradation of critical natural habitats?  No
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?  Yes

**OP 4.09 - Pest Management**
Does the EA adequately address the pest management issues?  Yes
Is a separate PMP required?  Yes
If yes, has the PMP been reviewed and approved by a safeguards specialist or SM?  Are PMP requirements included in project design?  If yes, does the project team include a Pest Management Specialist?  Yes

**OP/BP 4.11 - Physical Cultural Resources**
Does the EA include adequate measures related to cultural property?  Yes
Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?  Yes

**OP/BP 4.12 - Involuntary Resettlement**
Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?  Yes
If yes, then did the Regional unit responsible for safeguards or Sector Manager review the plan?  Yes

**OP/BP 4.37 - Safety of Dams**
Have dam safety plans been prepared?  Yes
Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?  Yes
Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?  No

**OP 7.50 - Projects on International Waterways**
Have the other riparians been notified of the project?  Yes
If the project falls under one of the exceptions to the notification requirement, has this been cleared with the Legal Department, and the memo to the RVP prepared and sent?  N/A
Has the RVP approved such an exception?  N/A

**The World Bank Policy on Disclosure of Information**
Have relevant safeguard policies documents been sent to the World Bank’s Infoshop?  Yes
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?  Yes

**All Safeguard Policies**
Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard Yes
policies?
Have costs related to safeguard policy measures been included in the project cost? Yes
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies? Yes
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents? Yes

D. Approvals

<table>
<thead>
<tr>
<th>Signed and submitted by:</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Team Leader:</td>
<td>Mr Francois Onimus</td>
<td>04/05/2011</td>
</tr>
<tr>
<td>Environmental Specialist:Mr Asferachew Abate Abebe</td>
<td>04/05/2011</td>
<td></td>
</tr>
<tr>
<td>Social Development Specialist</td>
<td>Mr Shankar Narayanan</td>
<td>04/05/2011</td>
</tr>
<tr>
<td>Additional Environmental and/or Social Development Specialist(s):</td>
<td>Mr Edward Felix Dwumfour</td>
<td>04/05/2011</td>
</tr>
</tbody>
</table>

| Approved by: |
|--------------|------------------|------------|
| Regional Safeguards Coordinator: Ms Alexandra C. Bezeredi | 04/05/2011 |
| Comments:    |

| Sector Manager: | Ms Karen Mcconnell Brooks | 04/05/2011 |
| Comments:      |                           |            |